

APPLICATION FOR RENEWAL OF INCIDENTAL  
TAKE PERMIT NUMBER 1008 UNDER THE  
ENDANGERED SPECIES ACT OF 1973

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BY

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The North Carolina Division of Marine Fisheries (NCDMF) is requesting the renewal of individual incidental take permit (ITP) 1008 issued to the State of North Carolina under Section 10 of the Endangered Species Act. The current permit expired December 31, 2000 and was issued for the years 1996- 2000 to replace the National Marine Fisheries Service (NMFS) emergency rules which were issued in 1992-1995 to allow limited tow times in lieu of the use of Turtle Excluder Devices (TEDs) in the area off the North Carolina coast from Brown's Inlet to Rich's Inlet because of high concentrations of algae which clog shrimp trawl nets and TEDs.

The problem of algae clogging shrimp nets in the area from Brown's Inlet to Rich's Inlet has been a problem for many years. At times, concentrations of algae are so thick that it is impossible to work the area because nets quickly fill with this algae. At other times, tow times were decreased in order to work the area. With the institution of Federal Regulations requiring the use of TEDs in shrimp nets to release endangered and threatened species of sea turtles, problems quickly developed with this algae clogging TEDs rendering them useless in releasing turtles and the nets filling with algae from the TEDs forward. The current permit number 1008 has been in effect for the shrimp fishery in this area for the previous five years (1996-2000) to allow the use of tow times rather than TEDs. The new ITP should be issued to NC Division of Marine Fisheries, PO Box 769, Morehead City, NC 28557, (252) 726-7021. We request that the permit be for a period of five years.

## **SPECIES**

loggerhead turtle Caretta caretta

green turtle Chelonia mydas

leatherback turtle Dermochelys coriacea

hawksbill turtle Eretmochelys imbricata

Kemp's ridley turtle Lepidochelys kempii

The leatherback and hawksbill were listed as endangered throughout their ranges on June 2, 1970 under the Endangered Species Act of 1973 (Public Law 93-205). The Kemp's ridley was listed as endangered on December 2, 1970. The green turtle was listed as threatened on July 28, 1978, except for the breeding populations of Florida and the Pacific coast of Mexico, which were listed as endangered. The loggerhead was listed as threatened wherever it occurs on July 28, 1978.

The geographic distribution of the loggerhead includes the subtropical (and occasionally tropical) waters and continental shelves and estuaries along the margins of the Atlantic, Pacific, and Indian oceans. It is rare or absent far from mainland shores. In the Western Hemisphere, it ranges as far north as Newfoundland and as far south as Argentina.

The green turtle has a circumglobal distribution in tropical and subtropical waters. In U.S. Atlantic waters, it occurs around the Virgin Islands and Puerto Rico and from Texas to Massachusetts.

The leatherback occupies the open seas although it is occasionally seen in coastal waters. Although it prefers warmer waters, it frequently appears in New England waters and north to Newfoundland during the summer months.

The hawksbill is typically a tropical species found throughout the Caribbean and is

commonly observed in the Florida Keys, the Bahamas, and southwestern Gulf of Mexico. Stragglers have been reported as far north as Massachusetts and as far south as northern Argentina. It is infrequently found in shallow coastal systems.

Most Kemp's ridleys occur in the Gulf of Mexico but it also occurs along the Atlantic coast as far north as Long Island and Vineyard South, Massachusetts.

Sightings of sea turtles in the Atlantic Ocean off North Carolina from 1989 - 1992 occurred throughout the year (Epperly et. al. 1995). Most were sighted in May and June (1133 turtles) and declined in other months: July and August (406), September and October (358), March and April (246), November and December (169), and January and February (76). Most sightings were from Cape Lookout to the north along the Outer Banks. Sea turtles were relatively common off Onslow County. During the four year period of 1989-1992, recreational fishermen sighted turtles in nearshore ocean waters on 6.5% of their trips, as compared to 2.6% for the entire coast.

Females of all five species of sea turtles lay clutches of eggs in nests on coastal beaches. The adults aggregate off the nesting beaches during the spring to mate and the female may return to the beach up to ten times to lay eggs. After an incubation period of two months, the hatchlings dig their way to the surface and scramble to the ocean. They then swim offshore and spend their early life in the offshore waters. After a few years, most species enter the coastal waters or move into bays, river mouths, and estuaries where they spend their juvenile life. There appears to be an inshore movement in the spring as the waters warm in the spring and an offshore movement as the waters cool in the late fall and early winter.

## PROPOSED ACTIVITY

When the TED regulations were implemented in offshore waters, a group of fishermen that participate in the shrimp fishery in a small area off the coast of North Carolina complained that they could not economically harvest shrimp with TEDs installed because high concentrations of algae clog the TEDs. Shrimpers must harvest the algae in order to catch the shrimp that inhabit it. TED use in these circumstances is impractical because they clog or exclude a large portion of the algae. The alga, initially thought by NMFS to consist solely of Dictyopteris membranacea, a winged species of brown algae, was recently determined to consist of several algal types and species, including the brown algae Sargassum filipendula, and the red algae, Halymenia sp., and Gracilaria sp.. The algae reportedly grow in the restricted area and on adjacent offshore hard bottom areas. Some offshore algae are thought to break loose naturally and accumulate in shallow coastal waters, adding to the nearshore concentration. The unpredictable concentration of algae in this area, and the limited trawlable bottom, broken by stretches of rocky, untrawlable bottom, make trawling problematic year-round. Fishermen generally trawl during daytime to minimize the threat of gear loss and to enhance sorting of the catch. They report that when the algae are heavily concentrated, they can only tow for short periods even without a TED. If algae concentrations are lighter, tow times increase correspondingly, but normally do not exceed 90 minutes. During the shrimping season, normally from about March through November, the algae are always present; however, density is seasonally dependant, with higher concentrations in summer months, forcing shorter tows. In colder months, when algae concentrations are lighter and TED clogging is

less of a problem, fishermen will likely opt to use TEDs rather than tow-time limits to increase tow times and optimize catches.

Duration of shrimp trawling activity in this area varies from year to year depending on shrimp abundance and environmental conditions but is concentrated in the period from March through December.

The exemption area is approximately 30 nautical miles (nm) long, between Rich's Inlet, North Carolina (34° 17.6' N. latitude), and Brown's Inlet, North Carolina (34° 35.7' N. latitude) and extends offshore 1 nm ("North Carolina restricted area"). The bottom between Rich's and Brown's Inlets consists of scattered rocks, sea grasses, and concentrations of algae.

Approximately 45 fishermen with extensive local knowledge of shrimp participate in this fishery, and will be authorized under this ITP. In the years 1992-1999, 43, 21, 28, 18, 38, 20, 20, and 14 vessels, respectively, were issued permits for exemption from the use of TEDs. Tow times were not instituted in 2000 because algae concentrations were low allowing fishermen to work effectively with their TEDs installed. Observations by the NCDMF Marine Patrol personnel indicate a range from zero to over 30 vessels may be working in this area at any one time and that effort is concentrated in the early morning to early afternoon period.

## **CONSERVATION PLAN**

During the 1996 - 1999 fishing seasons, ITP 1008 allowed the use of tow times

rather than TEDs. In order to obtain this permit, the State agreed to monitor fishing activities in this area to ensure compliance to tow time requirements. The Fisheries Director of North Carolina is empowered to issue proclamations by which the Director is able to implement restrictions on fisheries activities. There were a series of such proclamations dealing with the restricted area issued beginning on July 20, 1996 and continuing through the 1999 season (example attached). These proclamations required vessels to obtain a tow time permit from the Division if they wished to work without TEDs, and a maximum tow time of 55 minutes from the date of the proclamation to October 31 and 75 minutes from November 1 through November 30. For the new ITP, the Division proposes that the permit window for tow times be from April 1 through November 30 and that tow times be 55 minutes from the issuance of the proclamation through October 31 and 75 minutes from November 1 through November 30. Tow times are measured from the time the trawl doors enter the water until the time they are removed from the water and correspond to the tow times of 40 minutes bottom time in the summer months and 60 minutes during colder months as recommended by the National Academy of Science (1990) in "Decline of the Sea Turtles: Cause and Prevention". The tow time permits (copy attached) were required to identify each vessel working without TEDs and to monitor activity in the area. Individuals must obtain and sign a permit which contains permit conditions prior to beginning operations without TEDs. This permit and the associated proclamations inform them of all requirements for use of tow times in lieu of TEDs. Enforcement surveillance was primarily conducted from the beach as the activity was visible from the shore and it was difficult for the vessels to determine when they were being

observed. Other enforcement observations were made by the Division's aircraft and vessels.

A condition of permit number 1008 was that on-board observers be placed on 5% of the trips made while tow times were allowed. This was accomplished for all years except 1996 when slightly more than 3% of the trips were covered by observers (Table 1).

This permit would be in effect from April 1 through November 30 with tow times being permitted from the issuance of the proclamation through November 30 each year. The Division issues the proclamation after consultation with staff and industry representatives who observe algae concentrations. The industry utilizes tow times as a last alternative because they would rather use TEDs to avoid frequent haul-back of their gear. The Division issued proclamations under the old permit for the use of tow times in the period 1996-1999 on July 26, April 15, August 17, and July 17 respectively. The new permit would be effective from April 1 through November 30 of each year, however, the proclamation would be issued and tow times initiated only when algae concentrations prevent the use of TEDs. There were years, such as 2000, when tow times were not instituted because algae concentrations were low.

The Division proposes to monitor mortalities of sea turtles in the area through stranding records collected by the NC Wildlife Resources Commission stranding network. The Division does not have funding for on-board observers for this activity, however NMFS provided funding for observers for the old permit. The Division is requesting that this funding continue if observers will be required under the new permit. NMFS observers in 1992 and 1993 observed one capture of a loggerhead which was tagged and released alive.



Stranding records during the period 1992-1995 for the tow time area ranged between 10 and 26 loggerheads per year and one Green turtle for the entire period; however, the majority of standings took place prior to the issuance of tow-time permits. The Division proposes to terminate or modify the tow-time permits if standings exceed ten turtles in aggregate of Kemps ridley, Hawksbill, Green or Leatherback or 40 loggerhead turtles in the restricted area during the period tow times are allowed. The Division has data on capture of sea turtles from the NMFS observer reports and from log books submitted by the permittees. The only data on mortalities comes from the NC Stranding Network and this is difficult to correlate with tow time activity. There are no data available on which to estimate injuries or mortalities of turtles in this area.

The Division knows of no measures to prevent takes of sea turtles in this area during the use of tow time. Past experience has indicated that attempting to use TEDs during periods of high algae concentration renders TEDs inoperable leading to incidental takes of turtles. An alternative action considered was not to apply for a permit, however, the experience of fishermen in this area is that when algal concentrations are heavy, both the TEDs and the nets clog to the extent that they no longer function. This would not protect sea turtles nor would it allow the shrimp fishery to continue in this area.

## **ANTICIPATED IMPACT**

The proposed activity has the potential to capture sea turtles during shrimping operations but NMFS stated in May 1993..."To date, no adverse effects on sea turtles related to the expansion have been documented. During NMFS's continued review of

shrimping in the restricted area, there have been no observed takes and no standings that were related to shrimping activities.” NMFS placed observers aboard vessels on September 10, September 28, and November 30, 1992. They reported no turtles taken during 14 observed tows ranging from 18 to 47 minutes. NMFS observers aboard vessels on June 22 and July 7, 1993, witnessed numerous tows ranging from 20 minutes to 2 hours and 47 minutes in length with and without TEDs and reported no turtles taken or seen. During 1993, there was one observed capture of a loggerhead which was tagged and released and no mortalities by shrimp trawlers with observers on board (J. Merriner, pers. comm). The results of tow time activity are summarized in Table 1. There were 204 tows monitored by on-board observers during the 1996-1999 period. Nine loggerheads were in these tows and all were reported released in good condition. Analysis of log book entries shows that 58 turtles were taken in 3591 tows. All were identified by the fishermen as loggerheads and were released in good condition, although one turtle required resuscitation.

The North Carolina restricted area is contained within Onslow and Pender Counties. In 1992, no turtles stranded in those counties from January through April. From May through July, 20 turtles stranded within those counties, inside and outside of the restricted area: seven in May, eight in June, and five in July. Five loggerheads stranded in the restricted area from August 1 through December 31, 1992; two in August, two in September, and one in October. None of the standings bore wounds or marks that indicated cause of death. Two loggerhead turtles and one green turtle stranded within 15 nm of the Atlantic Ocean shoreline to either side of the restricted area between August 1,

and December 31, 1992. All three standings occurred in November, on the north side of Bogue Inlet, approximately 8 miles (12.8 km) north of the restricted area, and none bore marks that indicated cause of death. NCDMF personnel suggest that some of or all of the three standings, which occurred on Bogue Banks near Bogue Inlet Pier, may have been caused by entanglement nets since several dolphins also stranded in the area around the same time. NMFS believes that any sea turtles potentially taken incidental to shrimp trawling operations in the restricted area would very likely strand within the restricted area, longshore currents notwithstanding, because of the close proximity of trawling activity to shore (usually within 0.5 nm). NMFS' review of the sea turtle standings in the restricted area in 1992 indicated no observed or confirmed sea turtle mortalities associated with shrimp trawling. Ten turtles were stranded in the restricted area in 1994; half were stranded in April and May. Twenty-six turtles were stranded in the area in 1995. Again, 50 percent were found in April and May (R.Boettcher, pers. comm). In both years, the majority of standings observed took place prior to the issuance of non-TED permits. The stranding data from the restricted area for 1996 - 1999 are summarized in Table 1. As was observed in 1994 and 1995 most turtles were stranded before tow time were initiated with the exception of 1998. For the entire four-year period 78 turtles were stranded with 21 (27%) of those occurring during tow time use and 59 (73%) occurring when tow times were not in effect. Of the 21 strandings occurring during the use of tow times, 16 were loggerheads, 3 were Kemp's ridleys, and 1 each were green and leatherback.

## **ANTICIPATED IMPACT ON HABITAT**

There is no anticipated impact on the habitat of the sea turtles so no restoration of the affected habitat is needed.

## **STEPS TAKEN TO MONITOR AND MINIMIZE IMPACTS**

Marine Patrol enforcement officers will monitor tow times. Enforcement costs during the period 1992-1995 have averaged \$5,000/year and this level of enforcement has been sufficient. During the period 1996-1999, 227 hours were spent observing this activity by enforcement personnel. This level of funding is available for future monitoring.

Permits will be terminated or changed if standings exceed ten turtles in aggregate of Kemp's ridley, hawksbill, green, or leatherback or 40 loggerhead turtles in the restricted area during the period tow times are allowed or tow times cause the death of one Kemp's ridley, green, or leatherback or two loggerhead deaths. Standings of these species will be monitored through the North Carolina Wildlife Resources Commission stranding network and reports from the Marine Patrol officers in the area.

The use of log books was required under the old permit and the Division proposes that this be continued under the new permit. If observers are a condition of the new permit, the NCDMF will continue to administer this portion of the permit but requests that NMFS provide funding for the observers.

## **ALTERNATIVES CONSIDERED**

TED use was considered as an alternative to limited tow times. NMFS gear specialists conducted an assessment of the algae problem in July 1989 and documented

the presence of large concentrations of brown algae near the New River Inlet, which lies between Rich's and Brown's Inlet. Several different types of TEDs were evaluated for use in this area. A large grid-type TED, specifically modified to exclude sea grass, was tested and compared to non-TED equipped nets. Shrimp catches with and without TEDs were highly variable; both TED and non-TED equipped nets clogged with algae. The TED-equipped net excluded more algae than the control net, but exclusion of algae resulted in exclusion of shrimp. NMFS' test results suggested that a technical option may not exist to harvest shrimp effectively in heavy concentrations of brown algae with TED-equipped trawls when the shrimp are harvested from the algae.

Shrimp fishermen cooperating with the NCDMF and North Carolina Sea Grant tested additional weedless-type TEDs with the same results. The weedless TEDs released a significant portion of the algae, but in so doing also released the shrimp within.

The National Academy of Sciences (1990) , provides guidance on the effectiveness of tow times as an alternative to TEDs. This report concluded that tow times of 40 minutes would provide protection comparable to that afforded by TEDs. Thus, a tow-time limitation, if adhered to, appeared to be an effective alternative to mandatory TED use, and would provide comparable protection for sea turtles. This has proved to be the case in North Carolina if standing records are examined.

NMFS has previously recognized that enforcement of tow-time limits is difficult and expensive and that shrimp industry-wide compliance with tow-time limits has been poor (see e.g., 57 FR 18466, April 30, 1992; 57 FR 33452, July 29, 1992; 57 FR 40859,

September 8, 1992; 57 FR 40861, September 8, 1992; 57 FR 57348, December 4, 1992). A reason for the difficulty and costliness of enforcing tow times is that such enforcement is time-consuming and requires a significant presence by law enforcement officers who must continually watch as a trawler deploys its nets, conducts its timed tow, and finally retrieves its nets. When trawlers are far from land, fishermen can observe the presence of law enforcement patrol vessels and can alter their tow times accordingly.

However, the North Carolina restricted area extends only one nm offshore, with most fishing activity taking place within 0.5 NM of shore. The proximity of the North Carolina restricted area to land facilitates observations of trawlers' tow times by land-based enforcement observers. Fishermen are not able to circumvent the law because the presence of land-based enforcement observers is not as readily apparent as at-sea enforcement observers. Further, the size of the restricted area is relatively small, being only 30 square nm; its beaches are generally accessible to enforcement officers; and the small number of vessels historically participating in this fishery facilitates tow-time enforcement. Marine Patrol observed four violations during this permit period and issued one warning citation for exceeding the allowable tow time. All violations were nine minutes over the tow time limit or less and the one warning was for exceeding the tow time by nine minutes. Log book entries showed 14 tows that exceeded the tow times (Table 1).

Sea turtles are recognized as either threatened or endangered in North Carolina by both the Wildlife Resources Commission (WRC) and the Marine Fisheries Commission (MFC). Sea turtles come under the jurisdiction of the WRC according to the North Carolina Administrative Code (T15:10I0 pertaining to Endangered and Threatened

Species). Also, the North Carolina Administrative Code pertaining to Marine Fisheries (T15:3I.0107 Endangered or Threatened Species) states “Pursuant to a cooperative agreement entered into on February 5, 1979, by the Department of Environment, Health, and Natural Resources, the Marine Fisheries Commission, and the Wildlife Resources Commission, the Wildlife Resources Commission will exercise regulatory jurisdiction over any species of sea turtle, and their eggs and nests, consistent with designation of such species as endangered or threatened by the U.S. Fish and Wildlife Service. As provided by said agreement, the law enforcement officers of both the Marine Fisheries Division and the Wildlife Resources Commission have jurisdiction to enforce any State laws and rules, including those contained in 15A NCA 101, relating to endangered or threatened species of sea turtles and their eggs and nests.” Additionally, this rule states “The Fisheries Director may close or restrict by proclamation any coastal waters with respect to taking or attempting to take any or all kinds of marine resources when the method (equipment) used is a serious threat to an endangered or threatened species listed pursuant to 16 U.S.C. 1533(c). Copies of this list may be obtained from the Division of Marine Fisheries, PO Box 769, 3441 Rendell St., Morehead City, North Carolina 28557-0769.” Additionally, N.C. General Statute 113-189 makes it “unlawful to willfully take, disturb or destroy any sea turtles including green, hawksbill, loggerhead, and leatherback turtles, or their nests or eggs” and makes no reference to federal status.

## **APPLICATION**

The North Carolina Division of Marine Fisheries, PO Box 769, Morehead City, NC

28557, (Phone (252)-726-7021) makes application for renewal of an Individual Incidental Take Permit under Section 10 of the Endangered Species Act authorizing implementation of management measures for protection of threatened and endangered sea turtles while allowing the shrimp fishery to be prosecuted in the Atlantic Ocean between Brown's Inlet and Rich's Inlets and from the beach to one nautical mile offshore. It is requested that the ITP be valid for a period of five years. The ITP will authorize the NCDMF to implement the use of limited tow times in lieu of TEDs for the shrimp trawl fishery in the area referenced above to protect sea turtles. It is estimated that up to 45 vessels will participate in the segment of the shrimp fishery managed under the ITP.



## SOURCES

Boettcher, R. 1995. Personal communication. WRC.

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National Research Council. 1990. Decline of the sea turtles: causes and prevention, National Academy Press, Washington, D.C. 259 pp.

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